

of the system are distended, the preferred orientation is lost, and relatively large, dense granules are found within the cavities of the distended cisternae" (p. 71). These granules were similar to, but smaller than, the zymogen granules. Fractionating cells from both starved and fed animals, they found that in starved animals there was no appreciable proteolytic enzyme activity in microsomes, but that in recently fed animals it approximated that of the zymogen particles. By further fractionating the microsomes after treatment with doxycholate, they showed a higher concentration of the proteolytic and ribonuclease activity in both the particles and in the whole microsome for recently fed animals than for starved animals. Palade concluded,

To my knowledge, this is the first instance in which a product of the endoplasmic reticulum has been demonstrated in the form of well defined granules within the cavities of the system, and has been identified biochemically. (p. 73)

Palade was cautious about concluding that these enzymes were new products of protein synthesis, but did cite evidence using labeled leucine-I-C¹⁴ showing its earliest incorporation occurred in the particles still attached to the membrane. A little later the label was found in the intracisternal granules and only later in the zymogen granules. This pattern, Palade contended, is "compatible" with the hypothesis that the microsomal particles synthesized the new protein.

Naming the Ribosome

In February 1958, the new Biophysical Society held its first symposium at MIT, with a focus on microsomal particles and protein synthesis. One of the most important results of the meeting was the adoption of a new name, *ribosome*, for the particles. The editor, Richard Roberts, related:

During the course of the symposium a semantic difficulty became apparent. To some of the participants, microsomes meant the ribonucleoprotein particles of the microsome fraction contaminated by other protein and lipid material; to others, the microsomes consisted of proteins and lipids contaminated by particles. The phrase "microsomal particles" does not seem adequate, and "ribonucleoprotein particles of the microsome fraction" is too awkward. During the meeting the word "ribosome" was suggested; this seems a very satisfactory name, and it has a pleasant sound. The present confusion would be eliminated if "ribosome" were adopted to designate ribonucleoprotein particles of the size range 20 to 100 Å. (1958, p. viii)³²

³² Rheinberger (1997, p. 190, n. 12) claims that the suggestion stemmed ultimately from Howard Dintzis.